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MENTAL GROWTH AND DECAY.¹

BY EDMUND CLARK SANFORD.

Under cover of this somewhat vague title, I want to give you a psychologist's sketch of the course of mental development from the first beginnings of mind at, or before, birth to the final failure and break-up of the powers in old age.

The course of life from birth to death is a continuous one, but it bears at times such marked characteristics that it has been divided off by common consent into various stages, or ages of man, each more or less different from the others. Sometimes three or four stages only are made, sometimes a dozen or more. For our present purposes the traditional seven will be as satisfactory as any, and we shall subdivide where we find it necessary. We shall have, then, Babyhood, Childhood, Youth, Young Manhood, Adult Manhood (or Middle Age), the period of the Elderly, and that of the Aged. The most famous description of these is undoubtedly that of Shakspeare in "As You Like It," but you will recall that it is there put into the mouth of the "melancholy Jaques" and it is in rather spiteful fashion that he describes them. In years the periods are about as follows: Babyhood, birth to 2 or 3 years; Childhood, 2 or 3 to 12 or 14; Youth, 12 or 14 to 25; Young Manhood, 25 to 40; Middle Age, 40 to 55 or 60; Elderly, 55 or 60 to 70; Aged, or Senescent, 70 and beyond. And once more let me say that the stages shift from one to another by imperceptible gradations, and that these limits, therefore, are not to be taken as rigid. They do not lie in the same years for all men; they shift and change from one to another. Let no one be offended, then, if my limits have put him in a stage where he does not feel that he belongs. In his case the limits are probably different.

Before taking up these stages individually let us look for a moment or two at the general laws of growth that apply to the course of life as a whole. One of these was formulated by Minot²—in the first instance for the general relations of physical growth. His statement is that "the time required to accomp-

¹Delivered as an address before the Philosophical Club of Bryn Mawr College, April 4, 1902. The manuscript is here reprinted practically as it was read, except for the addition of certain paragraphs cut out to shorten the delivery.

²Article "Age," Handb. Med. Sci., I, 87.

lish a change of a given extent increases with the age of the organism." It is as though the new-born organism were swept into being by a flood of vital energy which from that day sinks slowly to a mere trickle and then ceases altogether. If we come "trailing clouds of glory," it is this superabundant life that gives them their effulgence. The same law is true also of mental growth; and, allowing for certain important though temporary checks or even reversals in the tendency of the rate of change to fall off, it gives a true picture of the increasing fixity that is characteristic of advancing life. It is because the mental changes follow this principle and are most rapid and extensive in babyhood, childhood and youth, that we shall have to devote the major portion of our time to these periods.

Closely connected with this, almost a corollary of it, is Fiske's observation that a lengthened period of infancy goes with a high grade of ultimate development. If the growth power is great and the growing period is long, opportunity is given for reaching high levels of development.

The second general law of growth is one formulated by Wundt.¹ He says, "the later stage arises solely from the preceding stage and yet appears to be a new creation in comparison to it." It is a law of "creative synthesis." "Each stage of development is already held in germ in the preceding," and arises from it "without the interference of any extraneous force, simply *by the elevation [to higher potency] of the elemental psychical conditions already active there," "an advance immanent in the properties themselves," "never the entrance of a new specific 'psychic faculty.'" This means, as I take it, that at every stage we shall find sensations associated into perceptions and perceptions into apperceptive groups; that we shall find these colored, each in its degree, with pleasant or unpleasant feeling; that we shall find impulsive and voluntary movements, habits, memories, variations of attention, and all the other elementary psychical phenomena ever undergoing combination and recombination in an ascending series of complexity, till we reach the full range of adult mental life. We shall have abundant illustration of this in what follows, and in the way and to the extent that Wundt had in mind, the law is undoubtedly true, though it is not a complete statement of the matter.

But let us now return to our stages of life, and first of all to the period of Babyhood—the stretch from birth to the end of the second or third year—the time of close dependence upon the mother. The beginning of the period is definitely marked;

¹ *Völkerpsychologie*, I, 242.

its close less definitely, though it may be set at the end of the teething period, two years to two years and a half, when the child is as ready as he will be for some time to deal with the common food of adults. Short as this period is, it is yet long enough to contain several quite distinct sub-periods. There is first the period of the *new-born*—the first few days after birth, when babies usually lose (or at least do not gain) in weight and are recovering from the catastrophe of birth and adjusting themselves to their new conditions of life. Here, for example, is the average change in the case of thirty-three children for the first six days: —139 grams, —64 gr., + 33, + 50, + 50, + 36.

Then follows the period of the nursing child up to the eighth or ninth month, or even to the end of the first year, during which he is getting control of his sense organs and his muscles, and making his first beginnings of the knowledge of things and their properties. And after this again comes a stage of less dependent babyhood, extending on to childhood.

The progress through the whole period of Babyhood may be indicated by some of its characteristic events. The baby is three months old before he can do much at holding up his head, and four months old before he can grasp effectively at what he sees. By the sixth month he gets his first tooth, and perhaps begins to imitate and to know his own name. By the seventh month he has learned to sit up. By the eighth or ninth month he is being weaned. By the ninth or tenth he may be creeping; by the twelfth he is standing and perhaps making his first attempts at walking, and beginning also to master a few words. By the fifteenth or eighteenth month the soft pulsating spot on the top of his head, the fontanelle, corresponding to the unclosed opening through the skull, is finally closed up. By the twenty-fourth to the thirtieth month he has the last of his first set of teeth. By the thirty-sixth month he has perhaps shown both his powers of locomotion and his independence by running away.

The mental development taking place through this period is at first so largely a matter of getting the use of the sense organs and the muscles that it is hardly possible to treat of mental growth apart from physical; we shall therefore ask no pardon for presenting a number of physical details. The *new born* baby comes into the world not only considerably out of proportion when measured according to adult standards—too big in the head, too small in the chest, too short in the legs—but also very far from complete, physically. His muscles are weak and not under his control; his eyes do not move together, he cannot look where he will, very likely he cannot see color at all. His ears are stopped. His nervous system is ready

for its work in the parts necessary for maintaining life, but very little so in those that furnish the basis for preception and voluntary movement. He has then, and has had for weeks his full quota of brain cells as to number, but many are as yet too little grown to be of much service. He will be nine months old before his brain in gross organization, even, is like that of an adult. In all probability mental growth must often wait for the development of the necessary cells and fibers of its physical substratum. It is small wonder, then, if his mind is practically non-existent. He can have had as yet but the vaguest and most unconnected sensations, if he has had any at all. He has none of the apperceptive groups by means of which things are perceived and understood. Or to put the same thing in other words, he has not yet had the experience necessary to give meaning to his simplest sense impressions. His eye rests upon a bright spot of sunlight:—he does not know it is light, nor its size, nor its distance; it is neither here nor there to him; he does not know that he sees, he does not *know* anything. He just receives an excitation—and that passively—and dully likes it or dislikes it. He is not alert mentally, either. His waking condition can not be very far from the sleep condition in which he passes so much of his time. As Professor James¹ remarks: "Prior to all impressions on sense organs the brain is plunged in deep sleep, and consciousness is practically non-existent."

And even when an ordinary excitation does penetrate to the slumberous little consciousness, the utmost response which it awakes (to quote Professor James again) is best "expressed by the bare interjection 'lo!'" —except, indeed, in the case of pains or sharp discomforts which doubtless make a more intense and voluminous, though probably no more distinct, impression. The story is told of a young mother who brought in her bachelor brother to see the new baby asleep in its cradle. Among the other things she asked if he didn't think the baby was very intelligent. He said he did n't feel himself altogether a competent judge and asked what the baby did that was so intelligent. The mother exclaimed, "Why, you great stupid, don't you see how intelligently he breathes!" The mother did n't miss by far the baby's highest pitch of intelligence.

In a somewhat more drastic fashion we may bring ourselves to a realization of the mental state in early babyhood by remembering that idiots and imbeciles are cases of "arrested development." I do not mean to say that in any case the idiot has simply stood still where he stopped; but, making all allowances, it is simple fact to say that any baby stopped

¹Psy. II, p. 7.

mentally during his babyhood would be an idiot or an imbecile. What I have just said is indeed true, but there is an abysmal difference between the two in that for one it is a healthy stage in progress toward full growth, and in the other, a permanent abiding place.

And the new-born baby begins to grow at once. Whenever he is awake, sensations pour in upon him and by degrees are knitted up into the tissue of his gradually forming mind. If he is at first, as to his mind, *tabula rasa*—an unwritten page—it is not an absolutely uniform page, but one rather on which the ink will flow much more readily in some directions than in others, and in which certain general outlines will, in the usual course of things, be almost sure to take shape. There are certain growth tendencies somehow latent in the nervous system, and there are certain experiences which the baby's human body and his situation in the midst of a human family are sure to bring him; and these growth tendencies and human experiences, between them, see to it that his mind shall grow up into something that we shall recognize as a human mind.

Let us take as a typical instance the development of voluntary control in the arm and hand. Every one is familiar with the vague convulsive movements so characteristic of little babies, the throwing about of the arms and legs, the grimaces, and the wriggings of the fingers. They are at first purely spontaneous, made without the baby's intention, very likely at times to his great surprise, by an involuntary discharge of his unstable nerve centers, or as an overflow from other centers actively stimulated. They belong to the early stages of babyhood, and gradually disappear as voluntary movements are established. They owe their importance, indeed, to the fact that they pave the way for voluntary movements. In order that a child should make a movement voluntarily he must know how it feels, and this the spontaneous movements teach him. They also furnish a great mass of partly organized movements from which certain preferred ones are selected.

One of the most characteristic of these early arm movements is that of bending at the elbow and carrying the hands toward the face—really a return to the position long occupied by them before birth. As the hands are brought up in this way they now and then wander by accident into the mouth.

At this stage the mouth and tongue are the leading organs of grasping and touch, and the sucking movements among the readiest that the baby possesses. Anything brought to the mouth is sucked and mumbled with the greatest enjoyment. His pleasure is often assumed to be a pleasure of taste, and babies are set down as little gourmands, whose chief delight

is eating; while it is probably the fact that what they are really enjoying are the muscular pleasures of sucking and the tactile pleasures of feeling of objects with the lips and tongue. When the hands come into the mouth in the way just described they also are sucked and mumbled like other things, and perhaps give rise to an especial pleasure because of the double touch sensations—in both mouth and hand—that are then experienced. At any rate the pleasures which the baby gets from this happy coincidence of hand and mouth put a premium on the repetition of the movements that produced it, and the baby is soon found to be bringing his hand to his mouth voluntarily. By the middle of the third month, perhaps, the baby has mastered the movement, and specialized upon the thumb as the most convenient part of the hand for sucking. But the hand is not yet recognized as a part of the same person as the mouth, and the baby is often astonished and disappointed to find that he cannot throw his arms about and go on sucking his thumb at the same time. The mouth is a grasping organ as well as a tactile one, and at this time the baby dives down with his head to capture his thumb quite as much as he raises his arm to bring it to his mouth.

The next step of advance comes from the side of the hand-movement. From the very first the baby's hands have tended to close reflexly upon whatever has come in contact with them—a survival, very likely, from the arboreal ancestors of man, and a time when it was a life-and-death matter that a baby should cling tight to the hairy body of its mother and leave both her hands free for fight or flight. (That this is not altogether a biologist's dream is made very probable by the fact of the baby's greatly advanced development in arms as compared with legs, by his early ability and passion for climbing, and by the experiment of Dr. Robinson, who found in many babies tested by him an ability to hang by their hands from a supporting bar far in excess, apparently, of their ability in most other directions.)

This reflex mechanical closure of the fingers upon objects with which they come in contact leads in the natural course of things—and, as before, quite without the baby's thought or intention—to the carrying of things clasped to the mouth, along with the hands. New pleasure results from the oral investigation of these things, and by the end of the third month the baby is found to be making deliberate efforts to carry things to his mouth.

In the meantime the touch sensations of the hand itself have not been running wholly to waste, and hand-grasping has gradually become more skillful. Objects are picked up when they touch the back or palm of the hand, and are fumbled for in a

blind way under guidance of touch alone. It is nearly a month more—say the end of the fourth month—before they come under the control of the eye. There is a time, indeed, when the eyes look on at the fumbling hands with interest, but without assisting them. Even when thus guided, the grasping for a time is still in the interest of the mouth; but the manual part improves as time passes, until by and by, perhaps toward the end of the fifth month, objects begin to be grasped in order to be handled and pulled about, rather than to be carried to the mouth. In the next month the pleasure of manual manipulation is great and mouth-grasping and its pleasures are on the wane, and so the carrying of things to the mouth becomes infrequent. By the ninth month hand-grasping is so perfect that the baby may be found able to pick up pins or to amuse himself in playing with a single hair.

Along with this increase in motor skill has gone an increase in the power of tactile discrimination, a growth and refinement really of a crop of tactual ideas; and in the tenth month the forefinger begins to take its place as a special organ for delicate touch investigations. Upon this follows still later another stage of development—interesting because it carries us over into another field—that of gesture language. The forefinger, having become a special organ for investigating-touch, is stretched out and applied to objects within arm's length, and, by an easy step, toward those that the baby would like to touch; and then (perhaps supported by the still earlier gesture of holding out the arms to objects of desire) it comes to indicate objects desired and finally any object, thus ending as the usual indicative gesture of the pointing finger.

In brief review, then, we have the hand carried to the mouth first by spontaneous movements, then intentionally. Its reflex grasping brings objects with it to the mouth, at first accidentally and then intentionally. Its reflex grasping gradually goes over into intentional grasping under the blind guidance of touch alone, which later yields in part to that of the eyes, (the sensations of the wider visual field coming to serve vicariously for its own more restricted tactile sensations). The growing refinement of its own tactile sensations leads, however, to the selection of the forefinger for tactile investigation, and the organ thus selected is by and by pressed into the service of communication.

There is not time to go into detail in regard to these matters, nor to recount through what stages the art of seeing or of walking is developed, or how the babbling voice-play of the baby becomes articulate speech. We must leave details with the typical case already given. But there are other general char-

acteristics, especially of the later part of the period, that we must give a word to.

The baby's chief business, after getting some sort of control of his sense organs and muscles, is to learn something of the properties and peculiarities of things about him. He begins this, indeed, a good while before his control of these organs is by any means perfect. Everything must be seen, touched, tasted, handled ; he must do everything he sees others do ; he must investigate. He may take off the top of a can and put it on a hundred times running, and as long as he does it he is probably learning something from it. When a baby keeps you busy picking up his rattle, which he drops again as soon as you give it to him, he is carrying on what seems to him an interesting game, but he is also learning in a practical way something about the law of gravity and how things behave when they are left unsupported. That he does so unintentionally and in the form of play does not alter the fact in the least. Sometimes the learning is wholly accidental, as when the baby touches the stove or tips over the ink bottle ; but in accidents again, as much as in play, he is learning. He goes to school all the time he is awake, and learns for the most part not only with interest but with the utmost zeal and enthusiasm.

He is not a very concentrated student, however. He is interested in everything, but in nothing long. As one writer has phrased it, his attention is very easy to *obtain* but very hard to *retain*. Emotionally it is just the same ; he is "pleased with a rattle and tickled with a straw," but cares for neither for very long together. On the other hand he is extremely conservative and will come back again and again to the same rattle and the same straw. In some things he is even the abject slave of habit. He cannot go to sleep without a feather to tickle his lips and nose with, or without the corner of the same blanket to suck. He is light-hearted unless he is ill, but is easily moved to tears. He is fearful of unfamiliar things (as he needs to be in a world of things evil as well as good) but much attracted also by whatever is new (as he needs again to be, if he is finally to know and master his world). He is affectionate but not loyal (he will forget his own mother in a few weeks). He is easily angered, but not resentful. He is largely self-regardful, as both his needs and his training dictate that he shall be, but he will cry if harm is threatened to those he loves. He is impulsive ; his powers of control are low ; he is an easy mark for slight temptations ; he has no stability of will and no constancy of purpose. What he obstinately refuses to do now, he may be quite willing to do in the changed mood of a few minutes later.

All this inconstancy of feeling and instability of will come

from the same causes. The little child (and still more the baby) lacks the fixed habits of thought and feeling (in technical language, the apperceptive masses) which put the solid frame-work into adult mind and character.

For a similar reason a little child is apt to be less surprised than an adult at the tricks of a sleight-of-hand performer, because the tricks do not seem much more wonderful than many other things he sees. As far as he knows, it may be as easy to take rabbits out of a silk hat as it is to make flour and eggs and butter and sugar into a loaf of cake. He is impressed equally by *all* such things because he has not yet the habits of thought that make one set of phenomena extremely strange and incredible, and the other quite ordinary. He has also a very imperfect idea of consequences, because he yet lacks experience. All psychical development from babyhood to old age can be summed up in terms of these two things—a growing complexity and fixity of habit, adjusted to remoter and remoter contingences, and all formed under pressure of experience. Of course babies differ enormously in all these things; what I have said may be only partially true of any one particular baby. But there yet remain enough points of similarity to give us a pretty definite set of ideas when the word is mentioned,—and some of these I have enumerated.

Toward the end of the babyhood period the baby is fairly familiar with the common properties of the things about him: he can walk and talk as much as he needs. He will make the coarser adjustments, keep his fingers out of the candle-flame, drink his milk, go to the kitchen when he wants a cookie. Psychologically he has become too complex, too active, and too observant for complete and overt observation and note-taking; he has “become as one of us to know good and evil.” His progress after this is less and less unlike the progress of adults.

With the end of his third year he passes out of babyhood and into childhood—the age of general mental adjustments as babyhood was that of physical adjustments. It is the great habit forming period. In its earlier part it is a continuation of the learning of bodily control, of language, and of the properties of things and characters of persons, already begun in babyhood, together with the beginning of moral and social requirements, obedience, clean hands and face, “yes, ma’am” to ladies and “yes, sir” to gentlemen. In the latter part it is the school age—the time when society seizes upon the boy and forces him to learn the indispensable conventions of modern life, reading, writing and ciphering. It is the age of “the whining school boy with his satchel and shining morning face, creeping like snail unwillingly to school.” (The limit of the

period is sometimes recognized in legislation. The compulsory education law in Massachusetts, for example, requires that children attend school till they are fourteen years old.)

As these differences indicate, the whole period falls apart readily into two sub-periods: early childhood, extending from three to about seven; and later childhood, extending from eight to the beginning of the adolescent changes at about twelve for girls and fourteen for boys, with a year of instability and change lying at seven or eight between the two sub-periods.

The importance of the turning point at about seven years is really very great. At that time the brain reaches nearly its adult size and the direction of its development probably changes. From birth to about the seventh year the cells have been growing toward their final bulk and form; after seven years, growth is probably in their finer intercommunicating branches—in the organization of the brain substance rather than in increase in mass.

A remarkable fact with regard to the dreams of the blind seems to point to the existence of a line of demarkation at about this same time. It is this: that persons who become blind during babyhood or early childhood (that is before seven years old) rarely or never dream of seeing; while those who become blind after that age do dream of seeing more or less frequently—more frequently of course as the interval between the beginning of their blindness and the seven year limit increases. It has been conjectured, with much plausibility, that the visual areas of the brain need the help of incoming excitations in order to grow up to full perfection; and, if deprived of these by the loss of the eyes before the most of their growing is done, are never able to reach the condition necessary for carrying the vivid presentation of the visual images on into later years. In order that an image may return in dreams it must not only be preserved but it must have formed some sort of associative links with other things in order that it may be reintroduced into consciousness. The perfection of the visual center probably involves the adequate growth of interconnections with other centers as well.

The falling away of the milk teeth and the coming of the permanent set begins a little before this critical time.

Let me characterize the two sub-periods a little more fully. The first is the period of Early Childhood. It is a period of somewhat rapid growth and change, though less so than the period of Babyhood. At three years the child has something over half his adult stature and at seven years more than two-thirds. He has still a good deal to do in getting control of his muscles; he is clumsy, especially at first; he tumbles down easily and often; he cannot throw or catch a ball very well;

fragile things are unsafe in his vicinity ; if he has a knife, he cuts his finger. He can manage his sense organs with some skill, but he has yet a good deal to learn of the more refined and inferential use of them. He is probably not at home in the conventional ways of representing solid forms ; he does not fully understand perspective drawings, nor the meaning of light and shade in pictures. His visual world itself is limited to things near the ground. He does not look up much, nor look far away.

Mentally he is growing continuously in complexity of thought and reaction under the guidance of several strong and important instincts : the instinct to investigate, to ask questions, to experiment ; and especially to imitate and to play. He lives the life of the senses, simpler motor activities and imagination. His mind is active and he has not as yet the experience that corrects illusions, nor the critical attitude that dissects them ; he is readily open to suggestions. He is fond of stories and they appeal to him powerfully, but they must be of action, with clearly marked ethical import. The prince must always slaughter the giant and marry the princess.

How narrow the experience of a little child really is and how little he knows outside the world of that experience is strikingly shown by the studies of the contents of children's minds on entering school, *i. e.*, when near the end of this first sub-period. In the tests made by Dr. Hall some years ago on Boston children, for example, more than half did not know their own wrists and ankles by those names and not more than one in five knew that they had hearts, lungs or ribs ; one in five did not know right hand from left ; about one in seven did not know the stars and even one in fourteen or fifteen did not know the moon. Over nine in ten did not know that leathern things came from animals, nor the origin of cotton things. Over eight in ten did not know what flour or bricks are made of, seven in ten did not know the shape of the world, and almost that proportion did not know the origin of woollen things. Half did not know that wooden things are from trees and one in five did not know the source of milk. Few children have any mathematical knowledge extending beyond four. And finally what knowledge they do have is scattering and unsystematic. This is of course toward the end of the sub-period ; at its beginning, they are ignorant of almost everything not lying immediately within their own experience and frequently brought to their attention.

This is all natural and as it should be. The child is yet laying the foundations of knowledge and his range of facts is not especially important. He is getting his knowledge at first hand and working it up into habit and fixed forms of reaction.

He is also gradually laying out the lines of what will be his habits of standing, sitting, walking, speaking. His temperamental tendencies are showing themselves more and more clearly, and in the interaction between these and his surroundings his moral qualities are also beginning to take shape—his attitude towards difficulty and toward authority.

His moral standards are as yet borrowed from adults and often shifting, but he is coming slowly to feel that some things can be done with good after-effects and some cannot. He has much to learn; he has, for example, no native modesty, and little idea of the property rights of others, or indeed of any rights of others at all. He may often exhibit a curious mixture of affection and selfishness. A story runs of two little fellows, whom I may call George and Charlie. One evening George and Charlie came into their nursery at supper time and found only one orange set out upon their table along with the other things. Suddenly George burst into tears. The nurse tried to comfort him and asked him what could be the matter. He replied between his sobs: "There isn't any orange for Charlie." Childish morality is not and ought not to be a replica of adult morality. If the child is making progress toward truth-telling, obedience and kindness, it is all that should be asked. It is not, however, a time when parents and teachers may be neglectful. The more fundamental habits, both physical and mental, are slowly forming under the guidance of precept in part, but infinitely more through imitation and the all-moulding influence of environment.

Most of the little child's waking time is spent in *play*, and perhaps we could not characterize the whole sub-period better than by calling it the period of simple play—pleasant, spontaneous, unorganized activity both of mind and body, but leading by the most direct route to the formation of such general habits of body and mind as I have just mentioned.

In this period begins also what is to be the chief characteristic of the following sub-period: the child begins to go to school. In the earlier part of it, even, he may enter the Kindergarten, and by the latter part he really starts in upon the process of formal education; but the pedagogical principles of the time should be borrowed largely from the previous and not from the following stage. The chief one should be "non-interference." See that the child has unlimited opportunity; keep him from getting set in habits that will hinder him later; and let his spontaneity do the rest. These two points alone will furnish the intelligent parent and teacher with all he will care to do.

With the transition into the period of later childhood comes more or less physical change and disturbance. The child at seven or eight is often more easily fatigued than he is at six

or nine ; and may be more or less upset. One student of the period is inclined to believe the extent of change at this age as great as that which at twelve or fourteen marks the beginning of adolescence.

After the transition-time comes the sub-period of later childhood from nine to twelve or fourteen. This is the school age *par excellence*, the time for learning things. Physically the period is one of steady growth, though the rate is probably not so rapid as during the transition-period preceding it and certainly not so rapid as in the one following it. The balance of physical functions is good. It is a time of health and small liability to disease. The coarser muscular adjustments are now well in hand and the finer ones are rapidly coming under control. It is the time for beginning practice upon musical instruments, for manual training and the like.

And the boy is in a similar condition mentally ; he has most of the general information that he needs for daily use ; his powers of attention and his mastery of language are sufficient to allow him to take up more difficult and abstract studies. He is solidified enough now both in body and mind to *work* in earnest—not in excess of course, but certainly to do some things that are not pure play. The boy who does not learn to *work* now misses one of the best things that can be taught him at this stage. It is the time for learning multiplication tables and paradigms and whatever else comes only by drill and drudgery. His powers of reflection are not as yet very far developed and he is better for learning tables and rules than for dealing with abstract principles. In feeling he is self-regardful, though not so unrestrainedly so as earlier. His self-control and persistence are only moderate. His will is not yet very strong. His social feeling in general is small (he is apt to be a tease and tormentor of those about him, and a depredator of orchards), but with reference to his particular group of companions he may be very faithful. His plays now begin to be co-operative (*i. e.*, team plays, a great advance upon the individualistic plays of early childhood) and games are played in which rigid subordination to the rules of the game are required—both involving valuable lessons for those that engage in them.

In the latter part of the time “gangs” develop and the boy’s hand may seem to be against society in general, but society does not fail to exert an immense influence upon the boy in spite of himself. It provides the general atmosphere in which he grows up and from which he can never escape. He breathes in the war spirit in times of war (even in early childhood) and later gets a bent toward sport from the popular interest in football or pugilistics, or yachting, or in many less tangible matters.

In conduct and morals as well as in other things, it is a time for drill. Discipline must be intelligent and adapted to the nature of the subject under training ; it must be sympathetic, but it must also be vigorous. Work must be well done ; reasonable requirements must be fulfilled to the letter, or habits of slipshod work and unreliability are likely to result.

If I should attempt to sum up the sub-period in a single word I do not know that I could do better than to use the word "boy" without modification or adjective of any sort. Whatever that word conveys to you belongs to this period. At the end of it, say at fourteen years, his adaptation to his surroundings is tolerably perfect. He can ride, skate, swim, dance, play tennis, baseball, football and other games, and do what he will with his body (barring a few feats of special strength or skill). He knows how to take care of himself in his own town, knows where to get what he wants. The period is one of such complete and happy balance as to lead an eminent lecturer on adolescence to suggest that it corresponds to a long stage in racial development when the race fitted fairly well with its surroundings and solidified its attainments rather than advanced by rapid strides ; and the superficial resemblances between the wild life of the savage and the instinctive hankerings of the twelve or fourteen year old boy are too plain to have escaped frequent remark.

I have spoken so far of boys alone. In babyhood and early childhood there are probably few differences between boys and girls worth considering. In later childhood differences probably appear, and would very likely repay careful study. In the next period they become marked.

Adolescence.—The next period, that of adolescence, or youth, extends from the close of the period of childhood to that of physical maturity at about twenty for young women and twenty-five for young men. The period is ushered in by a time of rapid physical growth—really a transition period between childhood and youth proper. This begins earlier, as I have said, in girls than in boys, and the girls being but a little inferior in height and weight at the start, soon surpass the boys and for two or three years are both taller and heavier. By the time they are fifteen or sixteen, however, the boys have begun their stage of rapid growth and are soon in the lead again, and so continue for the rest of their lives. The rate of growth falls off by degrees and becomes very slight towards the end of the adolescent period. At the ages specified it is practically at an end, though there is some reason to think that in the case of men the stature may go on increasing up to thirty-five and the weight even after that time, though in the latter case it is gain in fat and not in the effective size of

the organs. Soon after the beginning of the first rapid growth the characteristic changes begin in the organs of sex, attended and followed by the various secondary changes, both physical and mental, that go with physical maturity. The figure fills out, the voice changes, the beard starts, the masculine and feminine differences in mental attitude gather distinctness, and the boy and girl bloom gradually into manhood and womanhood. The whole period of adolescence is one of transition and is marked, as such periods often are, by maladjustment and general disturbance. And like such periods, again, it is of great importance. It is a time when the most powerful influences are at work both within and without, when the youth receives his racial inheritance and comes into his full estate as a man. What is not accomplished now in the determination of personal qualities or in the grounding of character, runs small risk of being accomplished later. The decisive nature of the period is recognized by savages in their ordeals and other rites of initiation into full tribal standing, and among ourselves by placing the age of majority at eighteen for girls and twenty-one for boys.

The changes occurring during this period affect all relations of life. I shall speak briefly of a few of them.

First *Physical Changes*. I have already spoken of the rapid growth at first and the specific sex changes, but these are by no means all. It is the last upward sweep of the powers of physical growth. New physical inheritances seem to come out, and a boy or girl who has resembled one parent may now grow to look more like the other ; or family diseases may appear, insanity or tuberculosis, which, if not directly inherited, now find the system less able to withstand their attacks. Yet in spite of the tendencies and in spite of the troubles arising from the temporary lack of balance in the growing organs, youth is a time of high vitality ; there is energy for anything—physical or mental. The energy, however, may not be well co-ordinated. In the earlier stages the youth is clumsy ; he has n't strength proportionate to the size of his muscles ; he has n't himself in hand. Or he may take up with some one-sided idea of life or theory of reform and hold it with a devotion out of proportion to its importance. But he has the energy, and the lack of balance passes away in time.

The characteristic sports of the adolescent stage are mostly team-plays as in later boyhood, but are carried on with more vigor and success, and toward the close of the period are pushed to the limit of strain and intensity, *e. g.*, college football, baseball and boat racing. Others, again, introduce an element of single combat, like boxing and the German student-duels. Such sports can flourish only at a time when the physical

powers both of endurance and control have reached a high degree of perfection.

Profound physical changes like those of this period can hardly take place without involving equally profound mental changes. One has only to think of the way in which his own mental world may change color in seasickness and recovery from it, or even from the alternation of rest and fatigue, to see reasons for all kinds of glooms and rose-lights in the world of the adolescent. Of these I shall speak more fully in a moment. I wish to speak first of his more intellectual characteristics. It is a time of great mental awakening. The youth's powers of reasoning and attention are developing rapidly. He has now many of the groups of apperceiving ideas (the distilled essence of experience), by which he can take in and react upon some of the larger problems of life. His eyes are opening, he begins to meet in his reading and in conversation with the ideas that have stirred the world. His course of study brings him to the Greek tragedies, the Roman Empire, the Renaissance, the Reformation, modern science—is it any wonder that the thoughts that stirred men at these periods, though coming distantly now and from the printed page, should cause an intellectual awakening in a mind that comes to them fresh and for the first time? He hasn't yet the balance and poise that he will get later; he takes these things in a one-sided way often, and runs up some parts of his intellectual building much faster than others. His interests and likes and dislikes may be quite unstable; he may be something of a faddist, now interested in one thing and now in another, but such a symptom is not fatal nor even bad, if he outgrow it in its time; for in the end he will go into his chosen field carrying some spoils from all upon which he has entered.

It is not so much these, however, that give the characteristic color to the mental life of youth, as those that root in emotion. This is the age of Jaques's "lover sighing like a furnace, with a woeful ballad made to his mistress' eyebrow," and it is true that in this stage the boy begins to notice the girls in a little different way and perhaps to take a little more pains with his dress and manners; he may have his first love affairs—transient and numerous and mostly innocuous. Often he is drawn toward a lady much older than himself, who may indeed understand him better and be kinder to him than the girls of his own age would be likely to be. And the devotion which a sixteen year old boy sometimes gives to such a woman is more like worship than anything she is likely to receive from older lovers. Something similar happens to the girls as well, and the passion of devotion is at times so strong as to take on aberrant forms. Young girls in college it is reported

at times develop passionate attachments for persons of their own sex, some instructor or fellow student,—a relation which, while it may promise something of pleasure, tends, if it go too far and last too long, to be decidedly unwholesome.

But these romantic feelings are but a part of the emotional life of the time, and Jaques has as usual picked out a single feature in order to heighten the effect of his picture. The general social feelings are much strengthened. Lifelong friendships are formed—there are no friendships like college friendships, it has been said. Altruistic emotion strengthens, and to many a boy the vision of a life of self-sacrifice for the general good comes like a Star of Bethlehem. Life at this time is taking on a new meaning, and in the intervals of his activity the youth dreams out his own future and forms his ideals. It is a time of aspiration. It is the time in which George Eliot describes Maggie Tulliver as feeling a "wide hopeless yearning for that something, whatever it was that was greatest and best on earth," and of which Longfellow sings, "A boy's will is the wind's will, and the thoughts of youth are long, long thoughts."

It is a time of hero-worship also—sometimes real people, sometimes imaginary ones. It is the time for day dreaming, for air castles, for romance, for ideal literature in poetry and prose. The day dreams and ideals are sometimes impossible; they are often crude; they are always inexperienced; but they are not therefore fair targets for ridicule. The boy of sixteen may be doing a deal more of serious thinking than he gets credit for. He realizes his inexperience and the crudity of his thought, and he is eager enough for something better, but he hates to have what he has taken pleasure in laughed at (or even smiled over), and so does n't talk of it. As he advances in age his ideas become more definite and tangible; he gets down toward reality, and in the end experience furnishes all the correction necessary. Perhaps too much! At this early age he is ready to put his ideals into practice; he may not be later. It is the youth, who, "When Duty whispers low, 'Thou must,' replies, 'I can.'"

At this time also religious and moral questions come to the fore. Statistics that have been gathered show that the adolescent period, especially its earlier part, is the natural time for the rise of religious feeling. Most conversions occur at that time, and confirmation is administered at about that age by those churches that make use of it. But the development is not always smooth. The boy begins to hear questions raised about the moral code that he has accepted so far on authority or under compulsion; he learns of other theologies than that he has heard from the local pulpit. He feels the need of settling these things for himself, or feels perhaps the simple impulse

to assert his independence, and the result is that theologies and moral codes go themselves into the fiery furnace. If those which he has been taught have been foolish and if the youthful spirit itself is a fiery one, they have small chance of coming out except as ashes; and even if they have been right and sound, but have been foolishly and dogmatically presented, they will be saved "so as by fire." But not all spirits are thus fiery and not all teaching needs revision. Many come through their youth with no very serious storm and stress period, and gradually find themselves realizing in earnest the religious experiences that they have heard vaguely spoken of before. The real safe guard against the more uncomfortable sort of experience first spoken of is home teaching which does not insist on non-essentials. The way to make a wreck as complete as that which overtook the "one hoss shay" is to make every part of your creed exactly as strong as every other part. And the real guiding star for those who are themselves in such a state is the *steady habit of right conduct*. Those who can keep their feet on the path of daily right living will find their theological skies clearing of themselves, and that before long.

But the boy himself is only half the story. He is not only different himself but he begins to be treated differently by others. Much of the hobble-de-hoy condition comes from the incompleteness of his fit into society. He puts on the modern *toga virilis* of long trousers and a tailed coat, and people begin to call him "Mister." He goes to parties where he does not know quite how to behave, and makes calls which he does not at all know how to terminate. Much of the difference in others' treatment of him is quite unconscious — brought out in others by his increasing stature and general development; but new things are expected of him and he responds to them, and thus action and counteraction work him along till his estate is fully recognized on both sides. Unfortunately, however, those nearest him are often slowest of all to recognize the change. (If Ponce de Leon had only examined the opinions which his kinsfolk and elders entertained of him he would undoubtedly have discovered his fountain of immortal youth). And even when his elders do recognize the new conditions in some degree, their treatment of him is apt to be uneven. At one time they require a man's behavior of him and again treat him like a boy. This is naturally more or less exasperating and unsettling, and it is often by no means a bad plan for a youth to go away from home at this period, and stay away until he can come back without the limitations of others' recollections of him. It also satisfies the strong cravings of this period for an independent life. Even boys in homes that they love feel it. It is the *Wanderlust*—to

get away, to join the army, to run away to sea, to see the world, to have some experience. It is the same feeling in another form that leads to the intellectual independence already spoken of. And it is a wise parent who can trust his own early training of the boy and remember, when he sees his son apparently drifting away from him, that the separation is a natural process of growth, and that if the training has been sound the boy will in the end return no less loyal than before and the richer for his knowledge of his own powers.

Another way in which society contributes to the peculiar character of youth is by keeping the boy away from action and responsibility, and shutting him up, as it were, until he is old enough to take his part in the real business of life. This, it seems to me, is responsible for the major part of the dreaminess and the mental "mumps and measles" of this period. These soon disappear under the touch of reality, and, I fancy, do not much bother those whose circumstances bring them early into active participation in affairs. It is hard work learning to swim when one is kept for the most part away from the water.

At the end of this period—at twenty-five—the young man is physically perfect, trained for his life work (as far as general training goes), and, though largely inexperienced, is eager to enter upon it. If I should try to characterize the period briefly I might say that it is the tuning of the orchestra; it is the opening of the flower and the promise of fruit; it is the declaration of independence; it is the new birth. If my figures seem mixed I can only reply that so is the period.

Young Manhood. The stage that follows is that of young manhood. It is the time which Jaques assigns to the soldier:

"Then the soldier,
Full of strange oaths, and bearded like the pard,
Jealous in honor, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth."

It is the time for action. The young man is full of energy; he is capable of much hard work; Chicago is said to be made by men under forty years old. It is the age of the under officers in the army and navy; young men for war, old men for counsel. It is the time when the young business man is getting his experience, laying up his capital and winning the confidence of his business acquaintances; the Napoleons of finance are said to be for the most part about forty years old. It is the time when the young professional man is laying the foundations of his professional success in law and medicine, and while these may not be "full of strange oaths" and bearded like panthers, there are also other haunts of "the bubble reputation" than the cannon's mouth. There is said also to be a "dead line" for

clergymen at forty, beyond which they are not likely to receive flattering calls to large churches. It is a time of hope—the world, at least at the beginning, is almost untried; anything may be possible. Even a modest young man may hesitate to say how high his star may not ascend. His natural force is not abated; he can pay the price of success; late hours either of work or dissipation can be borne. Indeed it is one of the first authoritative signs of middle life when the young man or woman begins in earnest to think much of to-morrow's lassitude in connection with to-day's pleasure. As a whole the period is one of hard and eager effort and of many lessons in the strenuous school of experience. In this period in the usual course of events a young man falls in love more effectively, and undertakes the support of a wife and family, and often carries with a light heart the double burden of business cares and anxieties for growing children. In a woman's life the corresponding period comes a little earlier. It is the time when the care of a family of little children takes all her time and energy; or if she be earning her own living, when she also is making her professional reputation as musician, artist, teacher or philanthropist. I fancy also that it would be found that many of the women active in the management of church or social affairs are of about this age—though not exclusively nor even predominantly perhaps, for there comes later an Indian summer period when women are often freer to undertake such things.

At about forty, the close of this period, we have another stage of transition, a sort of a second adolescence it might be called, when the young man puts off the "young" and becomes man pure and simple—the adult on the threshold of middle age. This second adolescence is not often so marked as the earlier one. A man of forty is less open in the expression of his feelings and there are fewer competent observers. Those who are younger think that grown up people are all rather beyond the point of feeling at all. (I fear myself, that if I were to press the question home upon you, you would be obliged to confess that a person of forty seems to you rather staid and old—in fact hopelessly adult.) And those who are older do not notice, or think it but natural that advancing years should make a change. But those who stand nearest to a man between thirty-five and forty-five will be pretty sure to see the change, if they look for it. It shows itself more in his active powers; he becomes little by little less aggressive than he used to be. "Up to forty a man seeks pleasure, after forty he flies from pain," sings an observant poet; and a few weeks ago I heard the same sentiment confirmed in the conversation of a couple of electric car employees when one of them said to the other,

referring to a recent railway accident: "A man beyond forty ain't got no business to jump trains."

There is physical ground for the change. By this time the forces of growth are fairly expended; repair goes on but there is no enlargement. Under forty a weak heart may grow to compensate its weakness—so the doctors say; but after forty not; and this is true of the physical powers in general. A man is not now able to stand so easily either the hard work or the dissipation that he once could bear with ease. He is more apt to count the cost. And for this reason the most likely time for reform in drunkards is not in young manhood when their physical powers and courage are high, but in the early part of middle life (about forty-five, say) when their physical condition is beginning to deteriorate and they feel and foresee the full effects of excess.

But there are also mental causes. Up to thirty-five or forty a man feels, as I have said, that life is not all tried; that it may yet contain much that is new and delightful. He feels that he does not know his own powers fully; there may yet be capacities in him that he has not discovered and that may yet realize his dearest ambitions. Up to that time he has been exploring his social and intellectual world as a baby explores his physical world. By forty he knows it pretty well and has taken the measure of many things in it, especially of himself. The chances are large that he has tried something important and failed flatly, or he has had occasion to look back and estimate the small progress he has made in realizing his ideals of ten or twenty years before. He cannot hide from himself that many things of which he has been casually dreaming are entirely and forever out of his reach. He wakes up with a chilly feeling to the recognition that his boyhood is past and that what he is to do he must do quickly, and sees at the same time how extremely hard it will be for him to advance far beyond his present standard in originality of work, however much he may increase its quantity or erudition. Such a time of disillusionment, if it be acute, cannot be passed through without something of humiliation and mental pain—but as in the case of the other periods of transition, time brings the man through it.

The severity of the experience will depend on the temperament and on the circumstances of him who is undergoing it. Here as everywhere the chief preventive and antidote of personal disappointment and suffering is to be interested in something or somebody else. Disappointment and disillusionments come even then, but they have not the sting that makes foiled personal ambition so bitter. Those who are married and have children, have a great and natural advantage here. The man

who at forty has a family of children growing up around him finds his own ambitions transmuted by almost insensible gradations into ambitions for his children. As he learns his own limitations he lives again in their undetermined possibilities, and as Shakspeare says, "sees his blood warm when he feels it cold." But even if he is not so happily situated, time and good sense carry him through. He comes again to a happier view of life, content if he may succeed in doing well what yet remains for him to do, and finally settles down for the best twenty years of his life for intellectual work. In adaptation to his environment he is like the boy ; he knows his world and his powers ; and though he may work now with less ambition, he works with well-knit habits of industry and the experience and skill of a veteran. Now character is fixed, if it ever will be ; the feelings are still strong, but restrained and concentrated ; the will is firm ; people take him seriously ; he finds that he has influence—perhaps to his own great surprise at first. It is the age of the judge in Jaques's sketch. The man is *adultus adultissimus*. He is at the age in comparison with which all the rest are estimated.

Period of the Elderly.—Upon this period follows that of the elderly (55 or 60 to 70), the period in which physical decline is unmistakable. Intellectual vigor may survive (and as sometimes happens, much more than compensate the failure on the physical side), but a man must take care of himself ; he must retire from positions demanding physical strength and must have a care that his body be able to support the demands of his mind. In intellectual matters, even, he may find that he must fight his indolence.

There are physical changes at about fifty-five or sixty that may serve to mark the beginning of the period—but I fancy that these are less generally noticed by the man himself and by his friends than are matters of another sort. A man may meet with a physical or mental shock from which he does not seem to recover fully, or he may find himself crowded out by younger men, or it be only that his children's children rise up and call him grandpa ; but in some way the knowledge comes.

Old Age.—By seventy all the man's physical incapacities are emphasized. The bodily tissues that before have failed of proper nourishment, now begin to show signs of actual degeneration. Weight and height grow less, the skin is dry and wrinkled, the hair scanty and white, the gums without teeth, the body bent, the hand tremulous, the sense organs, one or more of them, out of full function. The cells of the nervous system show many of the appearances that characterize fatigue in younger people, and perhaps it would not be far wrong to read the feelings of the aged from one's own feelings when

nearly tired out. The mental marks are too great fixity of habit in thought, too little power of origination, and too little courage for new undertakings, a tendency (partly enforced by the exclusion of the aged from active participation in current affairs) to revert to the affairs of youth and early manhood, defective memory, defective powers of sustained effort. In many things the old man is like the child (what the child has yet to acquire the old man has lost) and needs much the same sort of attention. A natural timidity and sometimes decreased powers of judgment, lead to suspiciousness and sensitiveness. In its unhappy aspect it is as Jaques describes it : "Second childishness and mere oblivion, sans teeth, sans eyes, sans taste, sans everything." In its happier aspect it is the time of protected and lovingly tended rest, well earned after the labor of a lifetime.

It is natural to look upon this period of failing powers as one rather to be dreaded than longed for. Many a youth has settled it with himself that he would gladly forego life before reaching the decrepitude of forty years ; and many a young man has thought the game would be hardly worth the candle after fifty. Many an old man also has found material for lamentation in the inevitable conditions of fourscore years.

But it is by no means necessary that old age should be wholly unhappy or terminate in "mere oblivion." More and more in our own day the old man is still active in his eighth decade. Gladstone comes naturally to mind as a striking example. Browning makes Rabbi Ben Ezra say :

"Grow old along with me!
The best is yet to be,
The last of life for which the first was made,"

and Cicero in his *Senectute* tells what he believes to be the secret of a happy old age, which is in substance to be content with the pleasures and employments that old age allows and thank the gods that one is not subject to the ills of other and earlier stages. A deeper insight finds the real secret of a happy old age once more in service for others carried on till the end of life—a service which on the one hand gives perennial interest to life by making the old man a participator in the life of all those about him, and on the other surrounds him with love in return—a love that finds in his weakness and even in his final childishness, if that comes to him, not a burden but an opportunity.

My time is exhausted and I have merely sketched the course of life for you. There is not time in a single hour to discuss also the theoretical questions that surround it, but I shall have time perhaps to emphasize further a single point of men-

tal hygiene. It is simply this: Cicero's advice to old men can easily be widened to fit all ages. If any one is to be happy he must find his happiness in the time and place in which he is, or like Alice in the Looking-Glass, he will find to his sorrow that there is always jam yesterday and jam to-morrow, but never jam to-day. And this again is but a special case of a yet wider precept. If you are to see beauty, or heroism, or romance, you must see them when and where you are, and in the things about you as they are. I do not mean that one is to see no ill in them; they are there, sometimes, apparently just to be improved; partly you must make your beauty for yourselves, but even for that you must be able to see and know it in its everyday clothes; you must live your lives where you happen to live. If you would let me, like Socrates in the *Phædrus*, make a prayer to the deity of the place before I depart, I should say: Grant unto me the seeing eye, that I may see the beauty in common things, that I may not miss a hero because he stands close to me, and that I may know that each age from first to last is good in itself and may be lived, not only well, but happily.